REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1, 2, 5, 6, 10-16, 18-20, 47, 48, 51, 52, 54-60 and 62-64 are in the case.

Claims 1, 2, 5, 6, 10, 11, 19, 20, 47, 48, 51, 52, 54, 55, 63 and 64 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent 4,374,663 to Collin et al in view of U.S. Patent 2,794,681 to Suess and U.S. Patent 4,461,743 to Chowdhury. Dependent claims 12-16 and 56-60 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Collin et al in view of Suess and Chowdhury and further in view of U.S. Patent 3,411,716 to Stephan et al. Dependent claims 18 and 62 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Collin et al in view of Suess and Chowdhury and further in view of U.S. Patent 5,801,265 to Wagner et al. Those rejections are respectfully traversed.

As claimed in claim 1, the invention is directed to a reactor for containing a solid catalyst for a heterogeneous gas-phase reaction. The reactor is a fluid bed reactor which comprises a grid, more than one inlet pipes for a molecular oxygen-containing gas extending into the reactor, surround means for surrounding a substantial portion of the inlet pipes in the reactor with an inert gas, and means for detecting a change in pressure of the inert gas surrounding the inlet pipes. The surround means are provided with a supply of an inert gas, and the inert gas surrounding the inlet pipes is sealed.

Claim 47 is directed to a reactor for containing a solid catalyst for a heterogeneous gas-phase reaction. The reactor is a fluid bed reactor comprising a grid, more than one inlet pipes for a molecular oxygen-containing gas extending into the reactor, surround means for surrounding a substantial portion of the inlet pipes in the

reactor with an inert gas and means for detecting a change in pressure of the inert gas surrounding said inlet pipes. The surround means is provided with a limited supply of inert gas sufficient to replace minor leaks.

The Action asserts that the combination of Collin and Suess discloses all of the limitations of claims 1 and 47 except for the grid and the use of inert gas to surround a substantial portion of the inlet pipes. According to the Action, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the fluidization means of Collin with a grid, and to substitute the cooling medium of Collin with an inert gas, since the use of grids for providing adequate fluidization of a mass of solids is well known in the art, and the use of inert gas for cooling nozzle structures is well known in the art (the Examiner cites Chowdhury as evidence of the latter). This position is respectfully traversed.

The combination of Collin and Suess does not lead towards or suggest that the fluid surrounding the inlet pipes should be "sealed", as specifically required by claim 1. Moreover, the combination of Collin and Suess does not disclose or suggest that the surround means be provided with a limited supply of inert gas sufficient to replace minor leaks, as specifically required by claim 47.

Collin discloses supplying oxygen to a fluidised bed for the reduction of iron oxide, wherein nozzles for the supply of hot fluidizing gas are cooled to prevent reduced iron oxide adhering to the surface of the nozzles. Suess is directed to the problem of leakage of cooling medium supplied to nozzles, in which water is fed into the cooling jacket through a conduit and discharged from the cooling jacket through a further conduit. Membranes detect a change in the amount of water supplied to and

discharged from the conduits by registering a change in pressure of the water across the membranes. The amount of water is increased at the moment in which the amount discharged decreases because of leakage.

Collin discloses that the cooling medium continually flows through a cooling jacket, entering via an inlet and exiting via an outlet (see, col. 2, line 12 & lines 62 to 68). There is no disclosure or suggestion in Collin that the cooling medium should be "sealed".

Suess requires that water be supplied to the cooling jacket and then discharged therefrom in order that a pressure change may be detected. Thus, the cooling jacket of Suess is not a sealed system, as required by the presently claimed invention. In fact, Suess would be rendered unsatisfactory for its intended purpose if the cooling jacket were sealed since, in a sealed system, the two membranes would register the same pressure and, if a leak occurred, the two membranes would still read the same pressure. Consequently, there would be no detection of any pressure change of the coolant. Since Suess specifically requires that the coolant is not sealed, Suess clearly leads away from the presently claimed invention.

Chowdhury does not cure the above-noted deficiencies. Chowdhury describes an apparatus for injecting a mixture of liquid water and an oxygen-enriched gas into a gas-liquid reaction medium within a wet oxidation reactor. Chowdhury does not relate to a gas-phase fluidised bed reactor. Furthermore, the problem addressed in Chowdhury, i.e. the prevention of evaporation of water in inlet pipes, is fundamentally very different to the problem solved by Collin, i.e., the prevention of particles of reduced

iron sticking to the nozzles. Thus, there would have been no motivation for one of ordinary skill to resort to Chowdhury in the context of Collin and/or Suess.

In the response to the Applicants' arguments of January 30, 2006, it is noted, in respect of the Applicants' argument that Suess would not work if the cooling jacket was sealed, that "the features upon which the Applicant relies (i.e. a surround means having an inlet, but no outlet, for the inert gas supply) are not recited in the rejected claims". In response, it is not necessary to include such limitations in the claims since the claim specifically requires that the inert gas surrounding the inlet pipes be "sealed", thereby inherently indicating that there can be no outlet for the inert gas.

With specific regard to claim 47, the combination of Collin or Suess does not disclose or suggest that the surround means should be provided with a limited supply of inert gas sufficient to replace minor leaks, since both references disclose that a continuous supply and discharge of the coolant is required. Thus, the combination of Collin and Suess (with or without Chowdhury) leads **away** from the invention of claim 47.

For all of the above reasons, it is clear that one of ordinary skill would not have been motivated to arrive at the presently claimed invention based on the combined disclosures of Collin, Suess and Chowdhury, particularly as there is no suggestion in those references, taken either singly or in combination, of the coolant surrounding the inlet pipes being "sealed". Absent any such motivation, a *prima facie* case of obviousness has not been generated in this case. Withdrawal of the obviousness rejection based on Collin, Suess and Chowdhury is respectfully requested.

With reference to the rejection of dependent claims 12-16 and 56-60 over Collin

in view of Suess and Chowdhury and further in view of Stephan et al., and the rejection of dependent claims 18 and 62 over Collin in view of Suess and Chowdhury and further in view of Wagner et al., it is believed those rejections should be withdrawn for the same reasons as urged above in connection with the rejection over Collin, Suess and Chowdhury. Stephan and Wagner fail to cure the above-discussed deficiencies of Collin, Suess and Chowdhury and, as such, do not give rise to a *prima facie* case of obviousness. Withdrawal of those rejections is respectfully requested.

Allowance of the application is awaited.

Respectfully submitted,

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